

**Notice of Allowability**

Application No.

10/815,473

Applicant(s)

COSNIER ET AL.

Examiner

Art Unit

Laura M. Schillinger

2813

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2/13/06.
2. ☒ The allowed claim(s) is/are 12-18.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |   |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)           |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                              |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|   | 9. <input type="checkbox"/> Other _____   |

## DETAILED ACTION

### *Allowable Subject Matter*

Claims 12-18 are allowed.

The following is an examiner's statement of reasons for allowance:

In reference to claim 12, Dutartre teaches a semiconductor device comprising:

a substrate (Col.2, lines: 25-30);

a gate dielectric (Fig.1 (3)) deposited on the substrate Col.2, lines: 25-30); and

a gate (2) formed on top of a first layer comprising:

a  $\text{Si}_{1-x}\text{Ge}_x$  first layer formed directly on the gate dielectric, where  $0.5 < x < 1$  (Fig.2 (11));

and,

a  $\text{Si}_{1-y}\text{Ge}_y$  second layer, formed on top of the  $\text{Si}_{1-x}\text{Ge}_x$  first layer  $0 < y < 1$  (Fig.2 (12)).

However, Dutartre fails to teach forming the gate on top of a  $\text{Si}_{1-x}\text{Ge}_x$  first layer and also fails to teach that the gate dielectric is made of a high dielectric permittivity material.

Fitzgerald ('735) teaches to form a channel region made of a  $\text{Si}_{1-x}\text{Ge}_x$  first layer (with a gate electrode formed on top of it) [Fig.3] and also teaches that a gate oxide could instead be a high-k dielectric (Col.7, lines: 15-25).

Although it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Dutartre to further include a high-k dielectric rather than an oxide as taught by

Art Unit: 2813

Fitzgerald, the Examiner could find no motivation to modify Dutartre and Fitzgerald to include a  $\text{Si}_{1-x}\text{Ge}_x$  layer underneath a gate which comprised a  $\text{Si}_{1-x}\text{Ge}_x$  and  $\text{Si}_{1-y}\text{Ge}_y$ . Consequently claim 12 contains allowable subject matter. Claims 13-18 depend from allowed claim 12 and act only to further narrow the allowable subject matter therefore all claims are in condition for allowance.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee.

Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M. Schillinger whose telephone number is (571) 272-1697. The examiner can normally be reached on M-T, R-F 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W. Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2813

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Laura M Schillinger', is written over a horizontal line.

Laura M Schillinger  
Primary Examiner  
Art Unit 2813

06/05/06